

SEQUENCE LISTING

<110> Brookhaven Science Associates
Shanklin, John

<120> Mutant Fatty Acid Desaturase and Methods for Directed Mutagenesis

<130> CIP of 09/328,550 filed June 9, 1999; which was a CIP of 09/233,856
filed January 19, 1999

<150> 09/328,550

<151> 1999-06-09

<160> 13

<170> PatentIn version 3.1

<210> 1

<211> 363

<212> PRT

<213> Ricinus communis

<220>

<221> misc_feature

<223> ricinus communis delta 9 18:0 Acyl ACP Desaturase

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Pro Phe Met Pro Pro Arg Glu Val His Val Gln Val Thr His Ser Met
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Pro Pro Gln Lys Ile Glu Ile Phe Lys Ser Leu Asp Asn Trp Ala Glu
35 40 45

Glu Asn Ile Leu Val His Leu Lys Pro Val Glu Lys Cys Trp Gln Pro
50 55 60

Gln Asp Phe Leu Pro Asp Pro Ala Ser Asp Gly Phe Asp Glu Gln Val
65 70 75 80

Arg Glu Leu Arg Glu Arg Ala Lys Glu Ile Pro Asp Asp Tyr Phe Val
85 90 95

Val Leu Val Gly Asp Met Ile Thr Glu Glu Ala Leu Pro Thr Tyr Gln
100 105 110

Thr Met Leu Asn Thr Leu Asp Gly Val Arg Asp Glu Thr Gly Ala Ser
115 120 125

Pro Thr Ser Trp Ala Ile Trp Thr Arg Ala Trp Thr Ala Glu Glu Asn
130 135 140

Arg His Gly Asp Leu Leu Asn Lys Tyr Leu Tyr Leu Ser Gly Arg Val
145 150 155 160

Asp Met Arg Gln Ile Glu Lys Thr Ile Gln Tyr Leu Ile Gly Ser Gly
165 170 175

Met Asp Pro Arg Thr Glu Asn Ser Pro Tyr Leu Gly Phe Ile Tyr Thr
180 185 190

Ser Phe Gln Glu Arg Ala Thr Phe Ile Ser His Gly Asn Thr Ala Arg
195 200 205

Gln Ala Lys Glu His Gly Asp Ile Lys Leu Ala Gln Ile Cys Gly Thr
210 215 220

Ile Ala Ala Asp Glu Lys Arg His Glu Thr Ala Tyr Thr Lys Ile Val
225 230 235 240

Glu Lys Leu Phe Glu Ile Asp Pro Asp Gly Thr Val Leu Ala Phe Ala
245 250 255

Asp Met Met Arg Lys Lys Ile Ser Met Pro Ala His Leu Met Tyr Asp
260 265 270

Gly Arg Asp Asp Asn Leu Phe Asp His Phe Ser Ala Val Ala Gln Arg
275 280 285

Leu Gly Val Tyr Thr Ala Lys Asp Tyr Ala Asp Ile Leu Glu Phe Leu
290 295 300

Val Gly Arg Trp Lys Val Asp Lys Leu Thr Gly Leu Ser Ala Glu Gly
305 310 315 320

Gln Lys Ala Gln Asp Tyr Val Cys Arg Leu Pro Pro Arg Ile Arg Arg
325 330 335

Leu Glu Glu Arg Ala Gln Gly Arg Ala Lys Glu Ala Pro Thr Met Pro

115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335

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Phe Ser Trp Ile Phe Asp Arg Gln Val Lys Leu
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<210> 2
 <211> 1092
 <212> DNA
 <213> Ricinus communis
 <220>
 <221> misc feature
 <223> residues 138 to 1239 of open reading frame

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 aaatccctag acaattgggc tgaggagaac attctggttc atctgaagcc agttgagaaa 180
 tgttggcaac cgcaggattt ttgcccagat cccgcctctg atggatttga tgagcaagtc 240
 agggaaactca gggagagagc aaaggagatt cctgatgatt attttgttgt ttgggttggga 300
 gacatgataa cggaagaagc ccttcccact tatcaaaca tgctgaatac cttggatgga 360
 gttcgggatg aaacaggtgc aagtcctact tcttgggcaa ttgggacaag ggcatggact 420
 gcggaagaga atagacatgg tgacctctc aataagtatc tctacctatc tggacgagtg 480
 gacatgaggc aaattgagaa gacaattcaa tatttgattg gttcaggaat ggatccacgg 540
 acagaaaaca gtccatacct tgggttcac tatacatcat tccaggaaag ggcaaccttc 600
 atttctcatg ggaacactgc ccgacaagcc aaagagcatg gagacataaa gttgggtcaa 660
 atatgtggta caattgctgc agatgagaag cgccatgaga cagcctacac aaagatagtg 720
 gaaaaactct ttgagattga tctgatgga actgttttgg cttttgctga tatgatgaga 780
 aagaaaattt ctatgcctgc acacttgatg tatgatggcc gagatgataa tctttttgac 840
 cacttttcag ctgttgcgca gcgtcttggg gtctacacag caaaggatta tgcagatata 900
 ttggagttct tgggtggcag atggaagggt gataaactaa cgggcctttc agctgagggg 960
 caaaaggctc aggactatgt ttgtcgggta cctccaagaa ttagaagggt ggaagagaga 1020
 gctcaaggaa gggcaaagga agcaccacc atgcctttca gctggatttt cgataggcaa 1080
 gtgaagctgt ag 1092

gagcctctaccc tcaagtctgg ttctaaggaa gttgagaatc tcaagaagcc tttcatgcct
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<210> 3
 <211> 34
 <212> DNA
 <213> Artificial

<220>
 <221> misc_feature
 <223> PCR primer; sequence flanking unique XbaI site at the 5' end of the open reading frame

<400> 3
 gtgagcggat aacaatttca cacagtctag aaat 34

<210> 4
 <211> 72
 <212> DNA
 <213> Artificial

<220>
 <221> misc_feature
 <222> (56)..(57)
 <223> PCR primer is a degenerate oligonucleotide in which "n" indicates the presence of either C, A, T or G at that nucleotide position

<400> 4
 ccaaattgcc caagacgtcg gacttgcacc tgtttcatcc cgaactccat ccaamnatt 60
 cagcattggt tg 72

<210> 5
 <211> 31
 <212> DNA
 <213> Artificial

<220>
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 <223> PCR primer

<400> 5
 gaaacaggtg caagtccgac gtcttgggca a 31

<210> 6
 <211> 26
 <212> DNA
 <213> Artificial

<220>
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 <223> PCR primer

<400> 6
gtttttctgtc cgcggatcca ttcctg

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<210> 7
<211> 34
<212> DNA
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<220>
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<223> PCR primer

<400> 7
gtgagcggat aacaatttca cacagtctag aaat

34

<210> 8
<211> 30
<212> DNA
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<220>
<221> misc_feature
<223> PCR primer

<400> 8
cacgaggccc tttcgtcttc aagaattctc

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<210> 9
<211> 28
<212> DNA
<213> Artificial

<220>
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<223> PCR primer

<400> 9
ttgataagtg ggaagggtt cttccgtt

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<210> 10
<211> 66
<212> DNA
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<222> (41)..(43)
<223> PCR primer is a degenerate oligonucleotide in which "n" indicates the presence of either C, A, T or G and in which "k" indicates the presence of either T or G.

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 <222> (32)..(34)
 <223> PCR primer is degenerate oligonucleotide in which "n" indicates the presence of either C, A, T, or G at that nucleotide position and in which "k" indicates either T or G

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 <221> misc_feature
 <222> (44)..(46)
 <223> PCR primer is a degenerate oligonucleotide in which "n" indicates the presence of either C, A, T, or G at that nucleotide position and in which "k" indicates the presence of either T or G.

<400> 10
 aacggaagaa gcccttccca cttatcaaac annkctgaat nnknnkgatg gagttcggga 60
 tgaaac 66

<210> 11
 <211> 26
 <212> DNA
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<220>
 <221> misc_feature
 <223> PCR primer

<400> 11
 tccattcctg aaccaatcaa atattg 26

<210> 12
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<220>
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 <222> (22)..(24)
 <223> PCR primer in a degenerate oligonucleotide in which "n" indicates the presence of either C, A, T or G at that nucleotide position and in which "k" indicates the presence of either T or G at that nucleotide position.

<220>
 <221> misc_feature
 <222> (28)..(30)
 <223> PCR primer in a degenerate oligonucleotide in which "n" indicates the presence of either C, A, T or G at that nucleotide position

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and in which "k" indicates the presence of either T or G at that nucleotide position.

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<220>
<221> misc_feature
<222> (49)..(51)
<223> PCR primer in a degenerate oligonucleotide in which "n" indicates
      the presence of either C, A, T or G at that nucleotide position
      and in which "k" indicates the presence of either T or G at that
      nucleotide position.
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```
<400> 12
ttgattggtt caggaatgga tnnkcggnnk gaaaacagtc cataccttnn kttcatctat      60

acatcattcc                                                                    70
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<210> 13
<211> 30
<212> DNA
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<220>
<221> misc_feature
<223> PCR primer
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<400> 13
gcaaaagcca aaacggtacc atcaggatca                                          30
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